

IN THE CLAIMS:

Please substitute the following claims for the same-numbered claims in the application:

Claim 1 (Currently Amended): A magnetic-field sensor device comprising:

at least two electrodes;

an insulating layer separating said at least two electrodes; and

at least one layer of chemically-synthesized magnetic nanoparticles disposed at or above a level with said insulating layer, and disposed between said at least two electrodes; and

an organic spacer surrounding each of said chemically-synthesized magnetic nanoparticles,

wherein a deviation between diameters of different ones of said nanoparticles is less than 15%.

~~wherein said chemically synthesized magnetic nanoparticles is 4.9 nm or less in diameter.~~

Claim 2 (Original): The magnetic-field sensor device of claim 1, wherein said at least two electrodes comprise a magnetic material.

Claim 3 (Original): The magnetic-field sensor device of claim 1, wherein at least one of said at least two electrodes comprises a magnetic material.

Claim 4 (Original): The magnetic-field sensor device of claim 1, wherein at least one of said at least two electrodes is one of a non-magnetic metal and a semiconductor.

Claim 5 (Original): The magnetic-field sensor device of claim 1, wherein said chemically-synthesized magnetic nanoparticles range in size between 2 nm and 20 nm in diameter.

Claim 6 (Original): The magnetic-field sensor device of claim 1, wherein said chemically-synthesized magnetic nanoparticles are oriented with a magnetic-moment orientation parallel to a direction of current flow through said chemically-synthesized magnetic nanoparticles.

Claim 7 (Original): The magnetic-field sensor device of claim 1, wherein said chemically-synthesized magnetic nanoparticles are oriented with a magnetic-moment orientation perpendicular to a direction of current flow through said chemically-synthesized magnetic nanoparticles.

Claim 8 (Currently Amended): The magnetic-field sensor device of claim 1, wherein said at least one layer of chemically-synthesized magnetic nanoparticles comprises ~~at least~~ one chemically-synthesized magnetic nanoparticle.

Claim 9 (Original): The magnetic-field sensor device of claim 1, wherein said chemically-synthesized magnetic nanoparticles comprise elements comprising one of Co, Fe, Ni, Mn, Cr, Nd, Pr, Pt, Pd, Ho, Gd, Eu, Er, Re, Rh, an intermetallic compound of said elements, a binary alloy of said elements, a ternary alloy of said elements, an oxide comprising one of Fe,

Co, Ni, Mn, and Cr, and a mixed oxide combining at least one of Fe, Co, Ni, Mn, and Cr, with at least one of La, Sr, Ba, and Cu.

Claim 10 (Currently Amended): The magnetic-field sensor device of claim 1, wherein said ~~insulating layer~~ organic spacer separates one chemically-synthesized magnetic nanoparticle ~~layer~~ from another chemically-synthesized magnetic nanoparticle ~~layer~~.

Claim 11 (Currently Amended): A magnetic-field sensor device comprising:

at least two electrodes;

an insulating layer separating said at least two electrodes; and

at least one layer of chemically-synthesized magnetic nanoparticles disposed at or above a level with said insulating layer, and disposed between said at least two electrodes; and

an organic spacer surrounding each of said chemically-synthesized magnetic nanoparticles,

wherein a deviation between diameters of different ones of said nanoparticles is less than 15%, and

wherein said at least one of said at least two electrodes comprises a magnetic material[[;]].

~~wherein said chemically-synthesized magnetic nanoparticles is 4.9 nm or less in diameter.~~

Claim 12 (Original): The magnetic-field sensor device of claim 11, wherein at least one of said at least two electrodes comprises a magnetic material.

Claim 13 (Original): The magnetic-field sensor device of claim 11, wherein at least one of said at least two electrodes is one of a non-magnetic metal and a semiconductor.

Claim 14 (Original): The magnetic-field sensor device of claim 11, wherein said chemically-synthesized magnetic nanoparticles range in size between 2 nm and 20 nm in diameter.

Claim 15 (Original): The magnetic-field sensor device of claim 11, wherein said chemically-synthesized magnetic nanoparticles are oriented with a magnetic-moment orientation parallel to a direction of current flow through said chemically-synthesized magnetic nanoparticles.

Claim 16 (Original): The magnetic-field sensor device of claim 11, wherein said chemically-synthesized magnetic nanoparticles are oriented with a magnetic-moment orientation perpendicular to a direction of current flow through said chemically-synthesized magnetic nanoparticles.

Claim 17 (Currently Amended): The magnetic-field sensor device of claim 11, wherein said at least one layer of chemically-synthesized magnetic nanoparticles comprises ~~at least one~~ chemically-synthesized magnetic nanoparticle.

Claim 18 (Original): The magnetic-field sensor device of claim 11, wherein said

chemically-synthesized magnetic nanoparticles comprise elements comprising one of Co, Fe, Ni, Mn, Cr, Nd, Pr, Pt, Pd, Ho, Gd, Eu, Er, Re, Rh, an intermetallic compound of said elements, a binary alloy of said elements, a ternary alloy of said elements, an oxide comprising one of Fe, Co, Ni, Mn, and Cr, and a mixed oxide combining at least one of Fe, Co, Ni, Mn, and Cr, with at least one of La, Sr, Ba, and Cu.

Claim 19 (Currently Amended): The magnetic-field sensor device of claim 11, wherein said insulating layer organic spacer separates one chemically-synthesized magnetic nanoparticle layer from another chemically-synthesized magnetic nanoparticle layer.

Claim 20-28 (Canceled).